



**UNITED STATES DEPARTMENT OF COMMERCE**  
**Patent and Trademark Office**

Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/501,872	07/13/95	LEGENDRE	0 022701-627

NORMAN H STEPNO  
BURNS DOANE SWECKER & MATHIS  
P O BOX 1404  
ALEXANDRIA VA 22313-1404

IM62/0527

EXAMINER
----------

BULLOCK, I

ART UNIT	PAPER NUMBER
----------	--------------

1764

14

DATE MAILED:

05/27/99

**Please find below and/or attached an Office communication concerning this application or proceeding.**

Commissioner of Patents and Trad marks

# Office Action Summary

Application No.  
**08/914,244**

Applicant(s)  
**Legendre, et al.**

Examiner  
**In Suk Bullock**

Group Art Unit  
**1764**



☒ Responsive to communication(s) filed on Mar 16, 1999

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

## Disposition of Claims

☒ Claim(s) 1-23 is/are pending in the application.

Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

☐ Claim(s) \_\_\_\_\_ is/are allowed.

☒ Claim(s) 1-23 is/are rejected.

☐ Claim(s) \_\_\_\_\_ is/are objected to.

☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☒ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been  
☐ received.

☒ received in Application No. (Series Code/Serial Number) 08/501,872.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

☐ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

Art Unit: 1764

***Claim Rejections - 35 USC § 112***

Claims rejected under 35 U.S.C. 112, first and second paragraphs, are hereby withdrawn in view of the amendment filed 03/16/99.

***Claim Rejections - 35 USC § 103***

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. § 103, the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 C.F.R. § 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of potential 35 U.S.C. § 102(f) or (g) prior art under 35 U.S.C. § 103.

The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention

Art Unit: 1764

was made, owned by the same person or subject to an obligation of assignment to the same person.

The factual inquiries set forth in *Graham v. John Deere Co.*, 148 USPQ 459, that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or unobviousness.

Claims 1-23 are rejected under 35 U.S.C. § 103 as being unpatentable over Goodboy (U.S. 4,364,858) and Dupin et al. (U.S. 5,244,648) or Carithers (U.S. 3,856,708).

The reference to Goodboy teaches a Claus catalyst in the form of activated alumina containing sodium oxide in an amount greater than 0.1 wt% of the catalyst, preferably between 0.1 and 2.5 wt% (col. 3, lines 54-59). The catalyst has a surface area greater than 100 m<sup>2</sup>/g, preferably greater than 300 m<sup>2</sup>/g (col. 3, lines 64-68). The catalyst may also be used as a catalyst base to which additive compounds such as molybdenum, cobalt, nickel, calcium and others known to those skilled in the art may be added to enhance the specific properties of the catalyst (col. 6, lines 62-68). Goodboy teaches that the catalyst of the invention has increased resistance to sulfate poisoning and higher catalytic activity with respect to compounds such as H<sub>2</sub>S, SO<sub>2</sub>, COS and CS<sub>2</sub>. In addition, Goodboy teaches that organic sulfur compounds are removed by hydrolysis (col. 1, lines 32-68).

Art Unit: 1764

The differences between Goodboy and the claimed invention are: (1) Goodboy does not teach any of the materials listed in claim 6 such as cellulose and (2) Goodboy does not teach diameter size of the beads and pore volumes.

The reference to Dupin et al. teach active alumina agglomerates comprising sodium (col. 3, lines 18-49), cellulose (col. 3, lines 55-61), alkaline earth metal salts (col. 4, lines 42-64) and silica (col. 8, lines 39-42). Agglomeration of the catalyst is carried out known manners such as pelletizing, extrusion, and shaping into beads (col. 3, lines 50-54). The alumina agglomerates have variety of applications such as catalysts or catalyst supports (col. 8, lines 37-39 and col. 8, line 64 thru col. 9, line 8). Depending upon the use of the alumina agglomerates, various pore sizes may be produced ranging in sizes less than 100 angstrom to greater than 10,000 angstrom (col. 8, lines 54-63).

Carithers teaches an activated alumina catalyst support having a macroporous structure with a total pore volume of at least about 0.7 ml/g, wherein a major portion of the total pore volume from pores larger than 700 angstrom is contributed by pores which are larger than 3,000 angstrom (col. 2, lines 45-67). The activated alumina is mixed with a filler material such as cellulose to facilitate formation of desirable macropores (col. 3, lines 47-67). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Goodboy and add cellulose as taught by Dupin et al. and Carithers because cellulose is a known pore forming agent and desired pore sizes may be obtained.

Art Unit: 1764

With respect to the claimed diameter size of the beads, Goodboy teaches that the size of the catalysts may be adapted to particular situation, i.e., fixed or mobile bed or fluid bed or with aerial suspension (col. 7, lines 1-4).

With respect to the claimed limitation wherein the catalyst has a specific surface of up to about 360 m<sup>2</sup>/g, Goodboy teaches a catalyst having a surface area greater than 100 m<sup>2</sup>/g (col. 3, lines 65-68) which encompasses the claimed surface area. Thus, the subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness, see In re Malagari, 182 USPQ 549 (CCPA 1974).

In view of the foregoing, the claims have failed to patentably distinguish over the applied art.

### ***Response to Arguments***

Applicant's arguments filed 03/16/99 have been fully considered but they are not persuasive.

Applicant argues that "Goodboy provides no recognition that low Na<sub>2</sub>O contents would be effective in providing improved CS<sub>2</sub> conversion rates." The examiner respectfully disagrees and directs applicant's attention to col. 1, lines 8-13, which explicitly states, "... improved Claus catalyst made from activated alumina and sodium oxide ... the catalyst possesses ... higher catalytic activity with respect to compounds such as ... CS<sub>2</sub> ..." Thus, Goodboy does in fact

Art Unit: 1764

recognize sodium oxide concentration is a result-effective variable and, thus, it would have been obvious to a skilled artisan to have optimized the concentration of sodium oxide. It is noted that Goodboy teaches catalytic activity with respect to compounds other than CS<sub>2</sub>, i.e., H<sub>2</sub>S, SO<sub>2</sub> and COS (col. 1, lines 11-12). A skilled artisan recognizes that a catalyst is unpredictable and would not function with same results for all processes. Thus, a skilled artisan would recognize that the amount of sodium oxide required for optimum results would differ for each of the compounds listed by Goodboy in col. 1, lines 11-12. Therefore, depending on the process for which the catalyst is to be employed, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have determined the optimum concentration of sodium oxide because sodium oxide is a recognized result-effective parameter. In re Antonie, 195 USPQ 6 (CCPA 1977).

Applicant argues that “the Nede Declaration submitted 05/28/98 shows that the claimed Na<sub>2</sub>O range produces unexpected improvement in CS<sub>2</sub> conversion in comparison to . . . Goodboy.” This argument is found unconvincing for the reasons stated above. It is well settled that a patent cannot be granted for an applicant’s discovery of a result, even though it may be unexpectedly good, which would flow logically from the teaching of the prior art. In re Rau, 117 USPQ 215 (CCPA 1958). In the present case, Goodboy teaches catalytic activity with respect to CS<sub>2</sub>, H<sub>2</sub>S, SO<sub>2</sub> and COS compounds. A skilled artisan would recognize that the amount of sodium oxide required for optimum results would differ for each of said recited compounds. Therefore, depending on the process for which the catalyst is to be employed, it would have been

Art Unit: 1764

obvious to one of ordinary skill in the art at the time the invention was made to have determined the optimum concentration of sodium oxide because sodium oxide is a recognized result-effective parameter. It would logically flow that the optimum amount of sodium oxide for each of the recited compounds would fall somewhere within the range of 0.1 wt% (1,000 ppm) and 2.5 wt% (25,000 ppm) as disclosed by Goodboy. Thus, the unexpected improvement specifically for CS<sub>2</sub> conversion would flow logically from the teaching of Goodboy.

Applicant argues that “Goodboy teaches away from low sodium oxide content at column 4, lines 18-35 . . .” This argument is found unpersuasive because the recited passage is specifically directed with respect to SO<sub>2</sub> chemisorption and not to all sulfur containing compounds.

Applicant argues, “In view of Goodboy’s preference for Na<sub>2</sub>O contents in amounts of 0.5% and above and Goodboy’s data showing essentially the same conversion rate for Na<sub>2</sub>O contents of 0.09 to 2.10%, the skilled artisan would not have expected low Na<sub>2</sub>O contents to produce the dramatic improvement in CS<sub>2</sub> conversion discovered by Applicants.” First, the disclosure of the reference is not limited to its preferred embodiments but must be evaluated for what they fairly teach one of ordinary skill in the art. In re Boe, 148 USPQ 507 (CCPA 1966). As stated above, one of ordinary skill in the art would recognize that the amount of sodium oxide required for optimum results would differ for each of the compounds listed by Goodboy in col. 1, lines 11-12. A skilled artisan would reasonably expect that within the range of 0.1 wt% (1,000 ppm) to 2.5 wt.% (25,000 ppm) sodium oxide concentration taught by Goodboy an optimum



Art Unit: 1764

concentration for catalytic activity with respect to  $\text{CS}_2$ ,  $\text{H}_2\text{S}$ ,  $\text{SO}_2$  and  $\text{COS}$  would differ for each. Recognizing that concentration of sodium oxide is a result-effective parameter, a skilled artisan could have determined the optimum concentration of sodium oxide through routine experimentation. Second, Goodboy's data is directed to  $\text{SO}_2$  chemisorption and not to  $\text{CS}_2$  conversion. A skilled artisan would not have expected the same amount of  $\text{Na}_2\text{O}$  to have the same effect for  $\text{CS}_2$  conversion as it did for  $\text{SO}_2$  chemisorption.

In view of the foregoing, the claims have failed to patentably distinguish over the applied art.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Serial Number: 08/914,244

Page 9

Art Unit: 1764

Any inquiry concerning this communication or earlier communications from the examiner should be directed to In Suk Bullock whose telephone number is (703) 308-3795. The examiner can normally be reached on Monday through Friday from 8:30 AM to 5:00 PM.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661. The fax phone number for this Group is (703) 305-3599.

*J. Bullock*

I.B.

May 26, 1999

*Walter D. Griffin*

**Walter D. Griffin**  
**Primary Examiner**